



Atty. Dkt. No. 083847-0201

IPW

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Chad A. MIRKIN et al.

Title: PATTERNING MAGNETIC NANOSTRUCTURES

Appl. No.: 10/663,976

Filing Date: 9/17/2003

Examiner: Alain Bashore

Art Unit: 1762

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 CFR §1.56**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

**TIMING OF THE DISCLOSURE**

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

**RELEVANCE OF EACH DOCUMENT**

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 CFR §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date November 17, 2005

By 

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Substitute for form 1449B/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> Date Submitted: November 17, 2005 <i>(use as many sheets as necessary)</i>				<i>Complete if Known</i>	
Sheet	1	of	2	Application Number	10/663,976
				Filing Date	9/17/2003
				First Named Inventor	Chad A. Mirkin
				Group Art Unit	1762
				Examiner Name	Alain Bashore
				Attorney Docket Number	083847-0201

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
C1	6,635,311			Mirkin	10-21-2003	
C2	6,827,979			Mirkin	12-07-2004	
C3	2003/0162004	A1		Mirkin	08-28-2003	

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Documents	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.				T <sup>6</sup>
	C4	AWSCHALOM, D. D., et al., "Electron spin and optical coherence in semiconductors," Phys. Today, vol. 52, pp. 33-38 (1999).				
	C5	BASELT, D. R., et al., "A biosensor based on magnetoresistance technology," Biosens Bioelectron, vol. 13, pp. 731-739 (1998).				
	C6	CHEMLA, Y. R., et al., "Ultrasensitive magnetic biosensor for homogeneous immunoassay," Proc. Natl. Acad. Sci., USA, vol. 97, pp. 14268-14272 (2000).				
	C7	DEMERS, L. M., et al., "Combinatorial Templates Generated by Dip-Pen Nanolithography for the Formation of Two-Dimensional Particle Arrays", Agnew Chem. Int. Ed., Engl., vol. 40, no. 16, pp. 3069-3071 (2001).				
	C8	DEMERS, L. M., et al., "Orthogonal Assembly of Nanoparticle Building Blocks on Dip-Pen Nanolithographically Generated Templates of DNA", Agnew Chem. Int. Ed., Engl., vol. 40, no. 16, pp. 3071-3073 (2001).				
	C9	DEMERS, L. M., et al., "Direct patterning of modified oligonucleotides on metals and insulators by dip-pen nanolithography", Science, vol. 296, pp. 1836-1838 (2002).				
	C10	FAN et al., "Rapid Prototyping of patterned functional nanostructures", Nature, vol. 405, pp. 56-60 (2000).				
	C11	HONG, et al., "Multiple Ink Nanolithography Toward a Multiple-Pen Nano-Plotter", Science, vol. 286, pp. 523-525 (1999).				

Examiner Signature		Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup>See attached Kinds of U.S. Patent Documents. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

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Sheet	2	of	2	Application Number	10/663,976
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				First Named Inventor	Chad A. Mirkin
				Group Art Unit	1762
				Examiner Name	Alain Bashore
				Attorney Docket Number	083847-0201

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PATENT &amp; TRADEMARK OFFICE

<b>NON PATENT LITERATURE DOCUMENTS</b>				
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.		T <sup>2</sup>
	C12	HONG, et al., "A New Tool for Studying the in Situ Growth Process for Self-Assembled Monolayers under Ambient Conditions", Langmuir, vol. 15, pp. 7897-1900 (1999).		
	C13	HONG, et al., "A Nanoplotter with Both Parallel and Serial Writing Capabilities", Science, vol. 288, pp. 1808-1811 (2000).		
	C14	ICHINOSE, et al., "A Surface Sol-Gel Process of TiO <sub>2</sub> and Other Metal Oxide Films with Molecular Precision", Chem. Mater., vol. 9, no. 6, pp. 1296-1298 (1997).		
	C15	IVANISEVIC, et al., "Dip-Pen' Nanolithography on Semiconductor Surfaces", J. Am. Chem. Soc., vol. 123, pp. 7887-7889 (2001).		
	C16	KONG, et al., "Synthesis of individual single-walled carbon nanotubes on patterned silicon wafers", Nature, vol. 395, pp. 878-881 (1998).		
	C17	LU et al., "Self-assembly of mesoscopically ordered chromatic polydiacetylene/silica nanocomposites", Nature, vol. 410, pp. 913-917 (2001).		
	C18	OHNO, H., et al., "Electric-field control of ferromagnetism", Nature, vol. 408, pp. 944-946 (2000).		
	C19	PRINZ, G. A., "Magnetoelectronics", Science, vol. 282, pp. 1660-1663 (1998).		
	C20	SORENSEN, C. M., "Magnetism", Nanoscale Materials in Chemistry (Wiley, New York, 2001), including Chptr. 6.		
	C21	WHITE, R. L., et al., "Patterned media : a viable route to 50 Gbit/in <sup>2</sup> and up for magnetic recording", IEEE Trans. Mag., vol. 33, pp. 990-995 (1997).		
	C22	YANG, et al., "Mirrorless Lasing from Mesostructured Waveguides Patterned by Soft Lithography", Science, vol. 287, pp. 465-467 (2000).		

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